

II. Remarks

Support for the various amendments made to the claims herein may be found throughout the application as filed. Claims 4, 8, 16 and 25-30 are cancelled herein, new claims 31-44 are added herein, and claims 31-44 remain pending in the present patent application, claims 1-3, 5-7, 9-15 and 17-24 having been cancelled previously.

On October 31, 2007, a Final Office Action (hereafter "Final Office Action") was mailed rejecting all of the then-pending claims on the basis of UK Patent Application GB 2,247,938 A to Sherriff et al. (hereafter "the Sherriff reference"), U.S. Patent No. 6,198,473 to Armstrong (hereafter "the Armstrong reference"), U.S. Patent No. 6,762,748 to Maatta et al. (hereafter "the Maatta reference"), and U.S. Patent No. 5,815,139 to Yoshikawa et al. (hereafter "the Yoshikawa reference").

The present Response and Amendment is submitted herewith in response to the Final Office Action, as well as to follow up on a telephone interview held with the Examiner on even date herewith, where no agreement was reached concerning the potential allowability of any of the new claims.

Applicants' attorney respectfully requests entry of the amendments made herein so that in the event the new claims presented herein are deemed by the Examiner not to be allowable, an Appeal Brief may be filed forthwith.

III. Rejections of Claims Made in the Office Action

In the Final Office Action the Examiner rejected claims on the following bases:

- (A) Claims 8, 27 and 28 were rejected under 35 U.S.C. Section 103(a) as being obvious over the Sherriff reference in view of the Armstrong reference;
- (B) Claims 4, 25 and 26 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over the Sherriff and Armstrong references in view of the Maatta reference;
- (C) Claims 16, 29 and 30 were rejected under 35 U.S.C. Section 103(a) as being obvious over the Sherriff, Armstrong and Maatta references in view of the Yoshikawa reference.

The foregoing rejections are responded to below.

IV. Responses to Rejections Made in the Office Action

New Claims 31-42 are neither anticipated by nor obvious over the Sherriff reference, nor are new claims 31-44 obvious over the Sherriff reference in view of any one or more of the Armstrong reference, the Maatta reference, and the Yoshikawa reference.

To avoid confusion and for purposes of clarity, Applicants' attorney presents all new claims herein, and cancels herein all previously submitted and previously pending claims. Thus, claims 4, 8, 16 and 25-30 are cancelled herein and replaced with new claims 31-44. As will be seen by referring to new claims 31-42 above, such new claims share certain similarities and overlap (at least to some extent) the subject matter recited in previously pending claims 4, 8, 16 and 25-30. The new claims also recite certain features and characteristics that are clearly not recited in previously pending claims 4, 8, 16 and 25-30, however.

Accordingly, while the rejections of previously pending claims 4, 8, 16 and 25-30 in the Office Action are technically rendered moot in the present Response and Amendment owing to the cancellation of such claims herein, and while the arguments set forth below technically relate only to new claims 31-44 presented herein, it will be understood that the arguments set forth below also relate to certain aspects of previously pending claims 4, 8, 16 and 25-30.

In this Section of the Response and Amendment, the subject matter recited in the new claims is first evaluated and discussed. Next, the content of the cited Sherriff, Armstrong, Maatta, and Yoshikawa references is discussed. Finally, the question of whether the new claims are anticipated by or obvious in view of the cited references is considered.

Reference to new independent claim 31 shows that this claim, and all other still-pending claims depending from such claim, contain several elements and limitations disclosed nowhere in the cited Sherriff, Armstrong, Maatta and Yoshikawa references. More particularly, reference to new claim 31 shows that all the following elements and limitations are recited therein, as well as in claims 32-44 depending therefrom:

- (a) A pointing system, comprising:
- (b) a moveable puck configured to move laterally within a puck field of motion ("PFOM") in response to a user applying a lateral force thereto;
- (c) the puck comprising a pressure sensing system configured to sense a first predetermined vertical pressure level applied by the user to the puck;
- (d) a position detector configured to measure puck position within the PFOM as the puck is moved laterally by the user therewithin;
- (e) the position detector further being configured to report the puck position to a processor configured to actuate or cause to be actuated tracking or movement of a cursor on a display;
- (f) the tracking or movement of the cursor corresponding to lateral movement of the puck by the user within the PFOM; and

- (g) a puck return mechanism attached to the puck and configured to return the puck to, or hold the puck in, a resting position within the PFOM when the user stops applying, or does not apply, vertical pressure to the puck;
- (h) wherein the system is configured to actuate or cause to be actuated tracking or movement of the cursor on the display corresponding to lateral movement of the puck by the user within the PFOM;
- (i) when the user applies vertical pressure to the puck that is greater than or equal to the first predetermined vertical pressure level;
- (j) and to cause the cursor to stop tracking or moving on the display when the user applies vertical pressure to the puck that is at least one of less than the first predetermined level and no vertical pressure.

Referring now to the Sheriff, Armstrong, Maatta and Yoshikawa references, it becomes clear that ***none of those references discloses any of elements (i) or (j) of claim 31 as presented herein, either explicitly or inherently.*** Instead, those references disclose the subject matter described in detail above. For a reference to anticipate a claim, the reference must contain all the elements and limitations recited in the claim. This is clearly not the case here, where at least two separate but interconnected elements recited in claims 31-44 as presented herein are missing from the cited references. Accordingly, none of the cited references anticipates any of claims 31-44 as they are presented herein.

The Sherriff reference discloses a capacitive control device for a computer comprising a puck which slides on the surface of platter 12, the position of the puck being detected capacitively. (See the Abstract of the Sherriff reference.) The puck may incorporate one or more push buttons, the depression of which may also be detected capacitively. Sherriff discloses various configurations of a puck that include electrodes, and a system where capacitive means are provided for detecting the position of a puck relative to a support member (see page 2, lines 20-25 of the Sherriff reference). Also disclosed is a puck capable of at least limited movement perpendicular to the support member, where the device comprises means connected to conductive regions for detecting the magnitude of the mutual capacitance, thereby enabling the position of the puck in the third (or z) dimension to be determined, and to be used to produce "an analog value and/or to control a respective switch." (See page 3, line 31 through page 4, line 5 of the Sherriff reference.) Nowhere does the Sherriff reference define or expound upon what such an analog value might be or correspond to, or what the respective switch might control.

Click or pressure-sensitive buttons 21, 41, 69, 81 and 101 are disclosed and discussed throughout the Sherriff reference. However, nowhere is clicking or pressure-sensitive functionality in the Sherriff reference tied or linked to tracking or movement of a cursor, or to suspending tracking or movement of a cursor. While a re-centering mechanism is disclosed in the Sherriff reference (see Fig. 7 and page 4, first full paragraph), nowhere is such a mechanism tied or linked to tracking or movement of a cursor, or to suspending tracking or movement of a cursor.

Although the Sherriff reference discloses the use of buttons and clicking functionality, there is no mention of a sensor to activate or de-activate tracking when the user is touching (or not touching) the puck. Moreover, the Sherriff reference makes repeated reference to "joysticking" or velocity control with a puck, but mentions nowhere motion control of a cursor on a screen using a puck, or of implementing skating functionality with a puck. See, for example, page 5, first full paragraph, where a detailed discussion of the advantages of employing capacitive sensing technology for velocity control is set forth. In velocity control, the position of the puck defines the velocity and direction of cursor motion, not the position of the cursor.

Furthermore, there is no mention, hint at or suggestion in the Sherriff reference of overcoming the problems associated with having to skate far more often with a small form factor pointing device than with a conventional mouse. Laptops and other small computing devices require pointing devices that have small form factors, which of course creates certain problems. Perhaps foremost among the problems created by the requirement for a small form factor in a puck pointing device for a laptop is the small size of the substrate upon which the puck rides or is attached. When the puck reaches the edge of the puck field of motion (PFOM), and a cursor on a screen that is tracking in response to movement of the puck on the PFOM may not have not moved sufficiently far across the screen. Thus, more skating is required using such small form factor puck devices than with a conventional mouse. Unfortunately, however, the problem of the cursor moving back to the center of the PFOM remains.

Reference to the last paragraph of page 6 of the Sherriff reference, which continues to the top of page 7, shows that Sherriff recommends varying the scale and resolution of cursor movement as the user brings the puck to the edge of the puck field of movement (PFOM). Thus, Sherriff is completely unaware of skating functionality as part of a solution to cursor control using a small form-factor pointing device, let alone employing pressure-sensitive means in combination with suspension of cursor activation and puck re-centering to permit the use of skating functionality in a small form-factor pointing device.

The Armstrong reference is directed to providing solutions to problems associated with a user scrolling by means of a mouse. To that end, Armstrong provides pressure-sensitive analog sensors structured for varying electrical conductance through at least three readable states or values. The readable states are dependant upon depressive pressure applied to the sensors through the finger depressible buttons. The circuitry is structured to read the at least three readable states of the pressure-sensitive analog sensor(s) and to produce signals representing the state or value of the sensors. The analog sensors are associated with window or screen scroll control, and provide user determinable scroll rates dependant upon pressure applied by the user through ergonomically correct finger depressible buttons.

Although the Armstrong reference discloses the use of buttons and clicking functionality, there is no mention of a sensor to activate or de-activate tracking when the user is touching (or not touching) the puck. Moreover, the Armstrong reference makes repeated reference to scrolling and window control with a mouse, but mentions nowhere motion control of a cursor on a screen using a puck, or of implementing skating functionality with a puck.

Furthermore, there is no mention, hint at or suggestion in the Armstrong reference of the problems associated with duplicating the functionality of a conventional mouse using a puck system in a laptop, for example, or of overcoming the problems associated with having to skate far more often with a small form factor pointing device than with a conventional mouse, as discussed in greater detail above.

The Maatta reference discloses a low profile input device for moving a cursor, scrolling a page, or selecting a function on a display of a handheld device. A planar joystick is used to move a cursor on the display of a handheld device and comprises a movable sliding button having a first magnet M1 embedded therein. The button is slid by a user's finger over a second magnet M2, an action that distorts the magnetic flux, which is detected by a plurality of magnetic flux sensors. The direction and magnitude of the cursor movement on the display correspond to the change in flux caused by the movement of the sliding button. In other words, Maatta discloses a velocity control pointing device, not a motion control pointing device.

Although the Maatta reference discloses the use of buttons and clicking functionality, there is no mention of a sensor to activate or de-activate tracking when the user is touching (or not touching) a puck. Moreover, the Maatta reference makes repeated reference to re-centering of a puck by means of magnets, but mentions nowhere how to implement skating functionality with a puck. Furthermore, there is no mention, hint at or suggestion in the Maatta reference of the problems associated with having to skate far more often with a small form factor pointing device than with a conventional mouse, as discussed in greater detail above.

The Yoshikawa reference discloses a relative manipulated variable input device which is capable of controlling the cursor movement in correspondence to ***the direction and amount of tilt of a control button and controlling the speed of the cursor movement*** in accordance with the force applied to the control button as well. Output data is generated using relative position data calculated from the difference between a pressed position and a reference position and a contact resistance value r_p . The output data, which represents the direction and amount of tilt of the control button, is output in accordance with the force applied to the control button. The relative position data represents the direction and amount of tilt of the control button and the output data is produced based on the relative data. Hence, the cursor movement can be controlled by the direction and amount of tilt of the control button, and by changing the force exerted on the control button to change the contact resistance value r_p , different output data corresponding to the force exerted on the control button can be provided even if the direction and amount of tilt of the control button are held unchanged.. In other words, Yoshikawa discloses a velocity control pointing device, not a motion control pointing device.

Nowhere does the Yoshikawa reference discloses clicking functionality, and there is no mention in the Yoshikawa reference of a sensor configured to activate or de-activate tracking when the user is touching (or not touching) a puck. Moreover, the Yoshikawa reference nowhere mentions how to implement skating functionality with a puck. Furthermore, there is no mention, hint at or suggestion in the Yoshikawa reference of the problems associated with having to skate far more often with a small form factor pointing device than with a conventional mouse, as discussed in greater detail above.

During the January 28 Interview, the Examiner mentioned that the new claims presented herein might be deemed obvious in view of the Sherriff reference because various elements recited in the new claims, *e.g.*, (i) the pressure sensing system configured to sense a first predetermined vertical pressure level applied by the user to the puck, (ii) a position detector configured to report puck position to a processor configured to actuate or cause to be actuated tracking or movement of a cursor on a display, (iii) a system configured actuate or cause to be actuated tracking or movement of the cursor on the display corresponding to lateral movement of the puck by the user within the PFOM when the user applies vertical pressure to the puck that is greater than or equal to the first predetermined vertical pressure level, and (iv) to cause the cursor to stop tracking or moving on the display when the user applies vertical pressure to the puck that is at least one of less than the first predetermined level and no vertical pressure, might be inherent in the Sherriff reference.

In relying upon a theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art (*i.e.*, the Sherriff reference. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Here, and as discussed above in detail, the Sherriff reference fails to disclose, teach or suggest elements (i) or (j) of claims 31-44, and reveals a complete unawareness of skating functionality as part of a solution to cursor control using a small form-factor pointing device, let alone employing pressure-sensitive means in combination with suspension of cursor activation and puck re-centering to permit the use of skating functionality in a small form-factor pointing device. Thus, not only are several structural elements now recited in the present claims completely missing from the Sherriff reference,

there is also no awareness of the problems in the Sherriff reference that are solved by the presently claimed invention. Consequently, the characteristics alleged to be inherent in the Sherriff reference simply cannot necessarily flow from the teachings of the Sherriff reference – those characteristics are missing, and there is no knowledge of the problems solved that would point one of ordinary skill in the direction of the inventions recited in the new claims presented herein.

The Applicants have discovered that a certain novel combination of electrical, electronic and structural components combined and configured in a certain order are required to produce the beneficial effects of the present invention. As demonstrated above, at least two of those components are not disclosed or suggested anywhere in the Sherriff, Armstrong, Maatta or Yoshikawa references, and accordingly cannot be *prima facie* obvious.

Merely asserting that "would be obvious to try" the invention by making reference to the capacitively-operated mouse of Sheriff, the pressure-sensitive velocity control functionality of Armstrong, the magnetic re-centering mechanism of Maatta, and the contact resistance electrodes of Yoshikawa, while essentially creating other claimed elements out of whole cloth without referring to any specific portions of the cited references to establish a motivation for combining elements or functionality disclosed therein, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to try, but rather must consider what the prior art would have lead a person skilled in the art to do.

There is no incentive, teaching or suggestion in the Sherriff, Armstrong, Maatta or Yoshikawa references to produce the inventions now recited in claims 31-44. The mere fact that the cited Sherriff, Armstrong, Maatta and Yoshikawa references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention. Indeed, this conclusion is buttressed by the fact that several important elements and limitations are missing in the Sherriff, Armstrong, Maatta and Yoshikawa references in respect of claims 31-44 as presented herein (and as discussed in detail above).

It is well settled that a motivation to combine elements or limitations disclosed in disparate references *must be found within the references themselves or from pertinent sources of extrinsic information*, and that such a motivation does not arise, as here, by merely identifying a collection of disparate piece parts in a combination of references, and then asserting it would have been obvious to take such disparate elements and limitations and add many others thereto to arrive at the presently claimed invention.

There is no suggestion of what direction any experimentation should follow in the Sherriff, Armstrong, Maatta and Yoshikawa references to obtain the invention now recited in claims 31-44. Accordingly, the result effective variables, for example providing skating functionality by disabling cursor movement when a puck is re-centered, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Sherriff, Armstrong, Maatta and Yoshikawa references and somehow arrive at the inventions now recited in claims 31-44 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for modifying the teachings of the Sherriff, Armstrong, Maatta and Yoshikawa references to arrive at the inventions now recited in claims 31-44. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. The Sherriff, Armstrong, Maatta and Yoshikawa references do not teach the problems associated with providing a small form-factor pointing device and the skating functionality that must be provided therewith.

When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim as amended herein out of isolated teachings appearing in the prior art is clearly improper.

The results and advantages produced by the invention set forth in claims 31-44 as presented herein, and of which the cited Sherriff, Armstrong, Maatta and Yoshikawa references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

The foregoing analysis also makes it clear that many limitations appearing in claims 31-44 as presented herein are not present in the Sherriff, Armstrong, Maatta and Yoshikawa references. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot dissect claims 31-44 as presented herein, excise the various individual elements recited in the claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the

Sherriff, Armstrong, Maatta and Yoshikawa references may not properly be used as a basis for rejecting claims 31-44 as presented herein under §103.


Finally, the function, way and result provided by the devices and methods disclosed in the Sherriff, Armstrong, Maatta and Yoshikawa references are completely different from those provided by the presently claimed inventions. All the devices and methods disclosed in the Sherriff, Armstrong, Maatta and Yoshikawa references are completely lacking in any recognition of one of the fundamental problems solved by the present invention, namely ***providing skating functionality by disabling cursor movement when a puck is re-centered***. Nowhere do the Sherriff, Armstrong, Maatta and Yoshikawa references teach anything regarding such a problem, even though many of the physical elements of an environment that produce such a problem are disclosed therein (i.e., a small form-factor pointing device). Thus, there is no motivation or suggestion present in the Sherriff, Armstrong, Maatta and Yoshikawa references somehow to arrive at the at least two elements recited in claims 31-44 that are missing from such references. Such opposing functions, ways and results establish yet further that the presently-claimed invention is not *prima facie* obvious over and in view of any combination of the Sherriff, Armstrong, Maatta and Yoshikawa references.

For all the foregoing reasons and more, the presently claimed invention is not *prima facie* obvious over and in view of the Sherriff, Armstrong, Maatta and Yoshikawa references.

V. Summary

New claims 31-44 as presented herein are believed to be in condition for allowance. Examination of the application as amended is requested. The Examiner is respectfully requested to contact the undersigned by telephone or e-mail with any questions or comments she may have.

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